IN THE CLAIMS:

Please cancel Claims 2 - 5, 15, 17, 19, 21, 23, 37 - 41, 43, and 56 - 68, without prejudice.

Please amend Claims 1, 6 - 10, 14, 18, 22, 24 - 26, 33, 42, 44 - 45, and 52 - 55 as follows.

1. (Currently Amended) A fluid handling structure comprising an assembly of adhered metal layers, wherein a plurality of said adhered metal layers is patterned to include at least one shaped opening which passes through said metal layers, so that upon adherence of said plurality of layers a fluid handling structure is formed, and wherein at least a portion of said plurality of adhered metal layers are diffusion bonded from metal layers where the metal is selected from the group consisting of a stainless steel, a corrosion-resistant nickel-comprising alloy, a corrosion-resistant cobalt-comprising alloy, and combinations thereof.

2. - 5. (Cancelled)

6. (Currently Amended) A fluid handling structure in accordance with Claim ~~4~~ 1, wherein said plurality of metal layers includes a corrosion-resistant nickel alloy ~~, and wherein said corrosion-resistant nickel alloy is a HASTELLOY®~~.

7. (Currently Amended) A fluid handling structure in accordance with Claim ~~4~~ 1, wherein said plurality of metal layers includes a corrosion-resistant cobalt alloy , and wherein said corrosion-resistant cobalt alloy is ~~an~~ ELGILOY®.

8. (Currently Amended) A fluid handling structure in accordance with Claim ~~5~~ 1, wherein said plurality of metal layers includes a corrosion-resistant nickel alloy ~~, and wherein said corrosion-resistant nickel alloy is a HASTELLOY®~~.

9. (Currently Amended) A fluid handling structure in accordance with Claim ~~5~~ 1, wherein said plurality of metal layers includes a corrosion-resistant cobalt alloy, and wherein said corrosion-resistant cobalt alloy is ~~an~~ ELGILOY®.

10. (Currently Amended) A fluid handling structure in accordance with Claim ~~2~~ 1, wherein metal layers which are diffusion bonded have a thickness within the range of about 0.0005 inch to about 0.06 inch.

11. (Original) A fluid handling structure in accordance with Claim 10, wherein said thickness is within the range of about 0.003 inch to about 0.025 inch.

12. (Original) A fluid handling structure in accordance with Claim1, wherein said at least one shaped through-hole is aligned with a shaped through-hole in an adjacent layer, thereby forming a fluid flow channel in said plurality of metal layers.

13. (Original) A fluid handling structure in accordance with Claim 1, wherein at least one layer of said plurality of metal layers includes at least one through-hole which is adapted for mounting of at least one component device.

14. (Currently Amended) A fluid handling structure in accordance with Claim 1 ~~or Claim 2~~, wherein said structure is part of a fluid distribution network for use in semiconductor processing.

15. (Cancelled)

16. (Original) A fluid handling structure in accordance with Claim 14, wherein said structure is a gas distribution structure for use in semiconductor processing.

17. (Cancelled)

18. (Currently Amended) A fluid handling structure in accordance with Claim 1 ~~or Claim 2~~, wherein said fluid handling structure is an integrated part of a network architecture including a number of fluid handling component devices.

19. (Cancelled)

20. (Original) A fluid handling structure in accordance with Claim 18, wherein said fluid handling structure is an integrated part of a network including a combination of fluid flow channels and component devices, and wherein said component devices are at least partially integrated into a layered substrate.

21. (Cancelled)

22. (Currently Amended) A fluid distribution network architecture for use in semiconductor processing equipment, wherein said fluid distribution network architecture comprises a fluid handling structure including a plurality of metal layers which have been diffusion bonded together, wherein said plurality of metal layers comprise a metal selected from the group consisting of a stainless steel, a corrosion-resistant nickel-comprising alloy, a corrosion-resistant cobalt-comprising alloy, and combinations thereof, and wherein said plurality of metal layers includes at least one feature which has been chemically or electrochemically etched through said layer prior to said diffusion bonding.

23. (Cancelled)

24. (Currently Amended) The fluid distribution network architecture of Claim ~~23~~ 22, wherein said plurality of metal layers includes at least one layer of a corrosion-resistant nickel alloy.

25. (Currently Amended) The fluid distribution network architecture of Claim 24, wherein said corrosion-resistant nickel alloy is HASTELLOY® C-22.

26. (Currently Amended) The fluid distribution network of Claim ~~23~~ 22, wherein said plurality of metal layers includes at least one layer of a corrosion-resistant cobalt alloy.

27. (Original) The fluid distribution network architecture of Claim 26, and wherein said corrosion-resistant cobalt alloy is ELGILOY®.

28. (Original) The fluid distribution network architecture of Claim 22, wherein said fluid handling structure , wherein said metal layers of said fluid handling structure which are diffusion bonded have a thickness within the range of about 0.0005 inch to about 0.06 inch.

29. (Original) The fluid distribution network architecture of Claim 22, wherein at least a portion of said feature of said fluid handling structure is formed from a plurality of metal layers each of which includes a shaped through hole.

30. (Original) The fluid distribution network architecture of Claim 29, wherein a plurality of shaped through holes are aligned with a through hole in an adjacent layer, thereby forming a fluid flow channel.

31. (Original) The fluid distribution network architecture of Claim 22, wherein at least one layer of said plurality of metal layers includes at least one through hole which is adapted for mounting of at least one component.

32. (Original) The fluid distribution network architecture of Claim 31, wherein said at least one component device is selected from the group consisting of manually operated valves, automatic valves, combination manually operated/automatic valves, pressure and temperature sensors, pressure regulators, flow sensing devices, flow controllers, laminar flow devices, check valves, filters, and purifiers.

33. (Currently Amended) The fluid distribution network architecture of Claim 22, wherein said structure includes at least one component device and at least a portion of said component device is partially or fully integrated into and is simultaneously diffusion bonded with said plurality of metal layers.

34. (Original) The fluid distribution network architecture of Claim 33, wherein said at least one component device is selected from the group consisting of manually operated valves, automatic valves, combination manually operated/automatic valves, pressure and temperature sensors, pressure regulators, flow sensing devices, flow controllers, laminar flow devices, check valves, filters, and purifiers.

35. (Original) The fluid distribution network architecture of Claim 22, wherein said network architecture includes a plurality of fluid handling structures.

36. (Original) The fluid distribution network architecture of Claim 35, wherein at least a portion of said fluid handling structures are fluid distribution assemblies attached to a manifold.

37. - 41. (Cancelled)

42. (Currently Amended) A method of preparing a gas distribution assembly for use in semiconductor processing equipment, wherein said method comprises:

a) providing a plurality of metal layers wherein said plurality of metal layers comprise a metal selected from the group consisting of a stainless steel, a corrosion-resistant nickel-comprising alloy, a corrosion-resistant cobalt-comprising alloy, and combinations thereof;

b) chemically or electrochemically etching at least one feature through at least one of said metal layers;

c) aligning said plurality of metal layers; and

d) diffusion bonding said plurality of metal layers.

43. (Cancelled)

44. (Currently Amended) The method of Claim ~~43~~ 42, wherein said plurality of metal layers includes a corrosion-resistant nickel alloy ~~, and wherein said corrosion-resistant nickel alloy is HASTELLOY®~~.

45. (Currently Amended) The method of Claim ~~43~~ 42, wherein said plurality of metal layers includes a corrosion-resistant cobalt alloy, and wherein said corrosion-resistant nickel alloy is ELGILOY®.

46. (Original) The method of Claim 42, wherein said metal layers to be diffusion bonded have a thickness within the range of about 0.0005 inch to about 0.06 inch.

47. (Original) The method of Claim 42, wherein said at least one feature includes a shaped through hole.

48. (Original) The method of Claim 47, wherein said shaped through hole is aligned with a shaped through hole in an adjacent layer prior to diffusion bonding, thereby forming a gas flow channel in said plurality of metal layers after diffusion bonding.

49. (Original) The method of Claim 42, wherein at least one layer of said plurality of metal layers includes at least one shaped through hole which is adapted for mounting of at least one component.

50. (Original) The method of Claim 42, wherein said method includes aligning and diffusion bonding at least a portion of a component device into said plurality of metal layers.

51. (Original) The method of Claim 50, wherein said at least one component device is selected from the group consisting of manually operated valves, automatic valves, pressure and temperature sensors, flow controllers, filters, pressure regulators, check valves, metering valves, needle valves, and purifiers.

52. (Currently Amended) The method of Claim ~~43~~ 42, wherein each of said metal layers is 400 series stainless steel, and wherein diffusion bonding is performed at a temperature within the range of about 1000°C to about 1300°C, at a pressure within the range of about 3000 psi to about 5000 psi, for a time period within the range of about 3 hours to about 6 hours.

53. (Currently amended) The method of Claim ~~43~~ 42 , wherein each of said metal layers is HASTELLOY® C-22, and wherein diffusion bonding is performed at a temperature within the

range of about 1000°C to about 1300°C, at a pressure within the range of about 8000 psi to about 10,000 psi, for a time period within the range of about 3 hours to about 6 hours.

54. (Currently Amended) The method of Claim ~~43~~ 42, wherein at least one of said metal layers is 400 series stainless steel, and at least one of said metal layers is HASTELLOY® C-22, and wherein diffusion bonding is performed at a temperature within the range of about 1000°C to about 1300°C, at a pressure within the range of about 4000 psi to about 10,000 psi, for a time period within the range of about 3 hours to about 6 hours.

55. (Currently Amended) The method of Claim ~~43~~ 42, wherein at least one of said metal layers is 400 series stainless steel, and at least one of said metal layers is ELGILOY®, and wherein diffusion bonding is performed at a temperature within the range of about 1000°C to about 1300°C, at a pressure within the range of about 4000 psi to about 10,000 psi, for a time period within the range of about 3 hours to about 6 hours.

56. - 58. (Cancelled)